

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

EXPANSE NETWORKS, INC.

PLAINTIFF,

vs.

CATALINA MARKETING CORP.,

DEFENDANT.

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C.A. NO. 02-CV-2857

**DEFENDANT'S RESPONSE TO PLAINTIFF'S
CLAIM CONSTRUCTION BRIEF**

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I. LEGAL STANDARDS FOR CLAIM CONSTRUCTION

It is evident from Expanse's claim construction brief that it misunderstands, or perhaps strategically neglects, controlling principals of claim construction set forth by the Federal Circuit. For example, Expanse asserts that to construe the claims of the patents-at-issue, the Court must rely on "the plain and ordinary meaning of the terms." *See* Expanse's Claim Construction Brief ("Expanse's Brief"), at 6. Expanse is partially correct in its recitation of the law of claim construction, but omits a critical limitation on ordinary meaning. Patent claims are to be construed according the ordinary meaning as would be understood by one of ordinary skill in the art. *See Waner v. Ford Motor Co.*, 331 F.3d 851, 854 (Fed. Cir. 2003) ("Claim construction begins with determining the ordinary and customary meaning, if any, that would be attributed to the term by those skilled in the art."); *Johnson Worldwide Assoc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999). Expanse also asserts that "dictionary definitions may establish a claim term's ordinary meaning," which is again only partially correct under Federal Circuit precedent.¹ *See* Expanse's Brief at 7. What Expanse fails to point out to this Court is that a general purpose dictionary definition is useful in construing terms only if the terms would be understood by one of ordinary skill in the art to have their common, lay usage, general purpose meanings, and cannot be used to "overcome credible art-specific evidence of the

¹ Although Expanse claims to rely on the ordinary meanings of the four claim terms (or phrases) it asserts are disputed and in need of construction, it interestingly enough only cites a dictionary definition to support the construction of one of those terms ("scalar"). *See* Expanse's Brief, at 14-19. As discussed below, Expanse's failure to cite relevant dictionary definitions on the other claim terms is purely a strategic move to avoid pointing-out that the general purpose ordinary meaning does not support Expanse's contrived construction.

meaning or lack of meaning of a claim term.” *See Vanderlande Indus. Nederland BV v. Int’l Trade Comm’n*, 366 F.3d 1311, 1321 (Fed. Cir. 2004). Therefore, to the extent a technical or art-specific dictionary definition is available, that definition controls.

Expanse also simply ignores that the ordinary meaning must always be confirmed by the intrinsic record -- in this case, by the patent specifications and prosecution histories for U.S. Patent Nos. 6,216,129 (“the ‘129 patent”), 6,298,348 (“the ‘348 patent”), 6,457,010 (“the ‘010 patent”) as well as U.S. Patent Application No. 09/204,888 (“the ‘888 application”).² *See Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). Because multiple, general purpose definitions, and in some cases one or more art specific meanings, are found in dictionaries, the intrinsic record must be consulted to determine which meaning is appropriate. *See Waner*, 331 F.3d at 854, *citing Texas Digital Sys., Inc. v. Telegenix, Inc.* 308 F.3d 1193, 1202-1203 (Fed. Cir. 2002). Additionally, the intrinsic record must be consulted to determine if the patentee acted as its own lexicographer by expressly providing definitions of terms that are consistent with or differ from the ordinary meaning. *See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298-1299 (Fed. Cir. 2003). Tellingly, nowhere in its brief does Expanse cite to portions of the intrinsic record that support its own construction. As discussed herein, and in the *Markman* Brief of defendant Catalina Marketing Corp.

² Because both the ‘129 and ‘348 patents claim priority to the ‘010 patent, common terms in each of these patents must be construed consistently and the specifications and prosecution histories of each are relevant to construction of the claim terms at issue in this case. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003); *Kimberly-Clark Corp. v. Tyco Int’l (US), Inc.*, 4 Fed. Appx. 946, 950 (Fed. Cir. 2001). The ‘129 and ‘348 patents also incorporate by reference the ‘888 application, which must also be considered in construing the claims at issue. *See Intergraph Corp. v. Intel Corp.*, 89 Fed. Appx. 218, 225-226 (Fed. Cir. 2004).

(“Catalina”), Expanse has not cited any support for its overly broad construction.

II. CONSTRUCTION OF THE CLAIM TERMS CITED BY EXPANSE

A. COMPUTER IMPLEMENTED METHOD

Catlina proffers that “computer implemented method” means “a method, each step being performed by a computer program.” Expanse, however, asserts that the term does not require any construction, or in the alternative, means “a procedure or process performed on a computer.” *See* Expanse's Brief, at 16. In offering its alternative construction, Expanse argues that “[n]owhere in either specification (which is the same in both the '348 and '129 patents)”³ or the file history is support for the notion that *each step* in the claimed method must be performed on a computer.” Expanse's Brief, at 15 (italicized emphasis in original, underlining added). Therefore, under Expanses’s construction, some of the recited steps may also be manually performed by a human-being. Expanse’s construction is wrong and wholly unsupported.

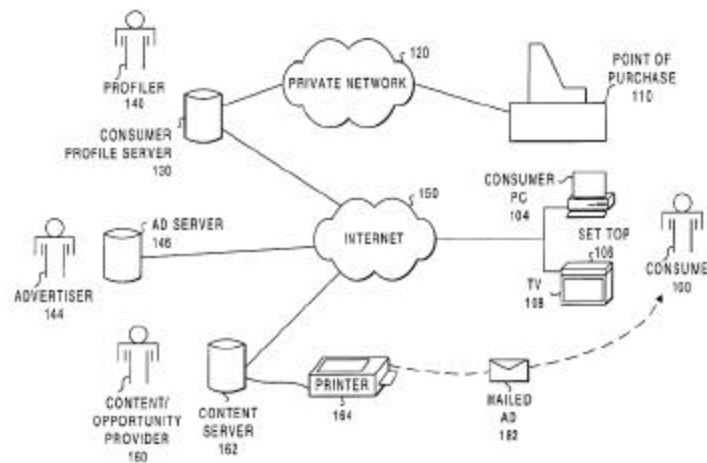
Expanse’s construction is unsupported by the specifications of the patents at issue. Indeed, Expanse does not cite any portion of the specifications as support for its proposition that a human-being can perform one or more of the claimed steps. It does not because there is none.⁴ To the contrary, the specification supports Catalina’s construction that each claimed step is performed by a computer program, specifically, by referencing

³ Expanse’s assertion that the specifications are the same is simply wrong. Even a cursory review of the specifications of the ‘348 and ‘129 patents would clearly reveal that, while there is substantial overlap, the two specifications are certainly not the same. *Compare* the “Summary of the Invention” sections of the ‘129 and ‘348 patents, submitted in the Exhibits To Defendant’s Markman Brief Regarding Claim Construction Of the ‘129 and ‘348 Patent at Exhibits 1 and 15.

⁴ While there is inherent human involvement in unclaimed background steps, such as the advertiser selecting the characteristics for the advertisement profile and the consumer making purchases, there is no disclosure in the patent-at-issue of a human-being carrying out the claimed steps.

“implementation” of the invention through various computer programming languages. The specifications of both the '129 and '348 patents state that the diagrams in the patents do “not limit implementation of the present invention to any particular programming language.” See Exhibit 1, col.10, lns. 4-7; Exhibit 15, col.4, lns.15-16 and col.9, lns.17-25 (emphasis added).⁵ Wholly absent from the specifications is any reference to a human-being implementing any of the claimed steps.

In fact, the specifications specifically distinguish between human-beings and computer systems with repeated and consistent use of computer terminology to describe how the claimed steps are carried out. Figure 1A of the '129 and '348 patents illustrates a distinction between human beings (profiler 140, advertiser 144, and consumer 100) and computer systems (consumer profiler 130, ad server 146, and content server 162).



'129 AND '348 PATENTS-FIGURE 1 A

⁵ Reference to exhibit numbers 1-37 refer to those exhibits previously submitted by Catalina in connection with its opening Markman brief. Exhibit numbers 38 and higher refer to new exhibits that are being submitted simultaneously with this response in Exhibits To Defendant's Markman Brief Regarding Claim Construction Of The '129 and '348 Patents, Volume III.

The human-being (profiler 140) is described as maintaining the computer (consumer profile server 130), but the actual steps are carried out by the computer system that includes the server. The specifications state:

Profiler 140 maintains a consumer profile server 130 which contains the characterization of consumer 100. The consumer profiling system is operated by profiler 140, which can use consumer profiling server 130 or another computing device connected to consumer profile server 130 to profile consumer 100.

See Exhibit 1, col.6, lns.27-32; Exhibit 15, col.5, lns.59-64 (emphasis added). There is no disclosure in the specifications of a human-being (such as profiler 140) actually performing the claimed steps of retrieving purchase records, retrieving product characterization information, generating the profile, etc. All of the claimed steps of the invention are carried out by a programmed computer or computer system:

The present invention can be realized as a data processing system or computer program which processes consumer purchase records and updates their demographic and product preference profiles based on the use of product characterization information. The data processing system can also be used to receive information regarding an advertisement and to perform a correlation between the advertisement and the consumer's demographic and product preferences.

The present invention can be realized as software resident on one or more computers. The system can be realized on an individual computer which receives information regarding consumer purchases, or can be realized on a network of computers in which portions of the system are resident on different computers.

See Exhibit 15, col.3, lns.18-32 (emphasis added).

That the claimed computer implemented method requires a computer to carry out each of the steps is evident from the use of computer terminology in the claim language and in the specifications to describe how the claimed steps are performed. The claim

language uses the term “retrieving,” which according to the parties’ stipulation means “to locate data in computer storage, so it can be displayed on a screen and/or processed.”

Exhibit 27. Moreover, computer terminology (such as transmitted, updated, automatically, received, database, programming language, and the like) is used consistently throughout the specifications to describe how the steps are performed. The following are examples of this terminology:

- “Purchase records are transmitted to the consumer profiling system which updates the consumer profiles based on product characterizations which include demographic profiles of the typical purchaser of that product as well as the product brand and size.” Exhibit 15, Abstract (emphasis added).
- “The present invention supports the receipt of consumer purchase information with which consumer characterization vectors are updated based on product characterization information. Exhibit 15, col.2, lns.33-36 (emphasis added).
- “One advantage of the present invention is that it allows consumer profiles to be updated automatically based on their purchases, and forms a description of the consumer including demographic characteristics and product preferences.” Exhibit 15, col.3, lns.33-36 (emphasis added).
- “FIG. 4 illustrates a computer system on which the present invention can be realized; FIG. 5 illustrates a context diagram for the present invention; FIGS. 6A and 6B illustrate pseudocode updating the characteristics vectors and for a correlation operation respectively.” Exhibit 15, col.4, lns.13-19 (emphasis added).
- “Depending on the data structure used to store the information contained in the vector, any of the previously mentioned vectors may be in the form of a table, record, linked tables in a relational database, series of records, or a software object.” Exhibit 15, col.7, lns.40-45 (emphasis added).
- “FIG. 4 shows the block diagram of a computer system for a realization of the consumer profiling system. A system bus 422 transports data amongst the CPU 203, the RAM 204, Read Only Memory--Basic Input Output System (ROM-BIOS) 406 and other components. The CPU 202 accesses a hard drive 400 through a disk controller 402. The standard input/output devices are connected to the system bus 422 through the I/O controller 201. A keyboard is attached to the I/O controller 201 through a keyboard port 416 and the monitor is connected through a monitor port 418. The serial port device uses a serial port 420 to communicate with the I/O

controller 201.... The computer system shown in FIG. 4 can be part of consumer profile server 130, or can be a processor present in another element of the network.” Ex15, col.8, ln.66-col.9, ln.16 (emphasis added).

- “FIG. 5 shows a context diagram for the present invention. Context diagrams are useful in illustrating the relationship between a system and external entities. Context diagrams can be especially useful in developing object oriented implementations of a system, although use of a context diagram does not limit implementation of the present invention to any particular programming language. The present invention can be realized in a variety of programming languages including but not limited to C, C++, Smalltalk, Java, Perl, and can be developed as part of a relational database. Other languages and data structures can be utilized to realize the present invention and are known to those skilled in the art.” Exhibit 15, col.9, lns.17-28 (emphasis added).
- “FIGS. 6A and 6B illustrate pseudocode for the updating process and for a correlation operation respectively. The updating process involves utilizing purchase information in conjunction with heuristic rules to obtain a more accurate representation of consumer 100, stored in the form of a new demographic characterization vector 562 and a new product preference vector 568.” Exhibit 15, col.10, lns.28-31 (emphasis added).
- “In FIG. 6B the pseudocode for a correlation process is illustrated. Consumer profiling system 500, after receiving the product characteristics and the consumer ID 512 from the advertisement records retrieves the consumer demographic characterization vector 562 and its product preference vector 564.” Exhibit 15, col.11, lns.17-23 (emphasis added).

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READ POP DATA
FOR N=1 TO M
  READ PRODUCT ID
  RETRIEVE [PRODUCT DEMOGRAPHICS VECTOR]
  RETRIEVE [DEMOGRAPHIC CHARACTERIZATION VECTOR]
  RETRIEVE [PRODUCT PREFERENCE VECTOR]
  WEIGHT = PRODUCT TOTAL PURCHASE / PRODUCT CATEGORY
          TOTAL PURCHASE
  HOUSEHOLD DEMOGRAPHICS VECTOR =
    (WEIGHT) * (PRODUCT DEMOGRAPHICS VECTOR) +
    (DEMOGRAPHIC CHARACTERIZATION VECTOR)
  NORMALIZE [DEMOGRAPHIC CHARACTERIZATION VECTOR]
  STORE [DEMOGRAPHIC CHARACTERIZATION VECTOR]
  PRODUCT PREFERENCE VECTOR =
    (WEIGHT * PRODUCT PURCHASE VECTOR) + (PRODUCT
    PREFERENCE VECTOR)
  NORMALIZE [PRODUCT PREFERENCE VECTOR]
  STORE [PRODUCT PREFERENCE VECTOR]
NEXT M

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READ [AD DEMOGRAPHIC VECTOR]
READ [AD PRODUCT CATEGORY, AD PRODUCT PREFERENCE VECTOR]
RETRIEVE [DEMOGRAPHIC CHARACTERIZATION VECTOR]
RETRIEVE [PRODUCT PREFERENCE VECTOR (PRODUCT CATEGORY)]
DEMOGRAPHIC CORRELATION = CORRELATE [DEMOGRAPHIC
CHARACTERIZATION VECTOR, AD DEMOGRAPHIC VECTOR]
PRODUCT PREFERENCE CORRELATION = CORRELATE [AD PRODUCT
PREFERENCE VECTOR, PRODUCT PREFERENCE VECTOR]
RETURN [DEMOGRAPHIC CORRELATION]
RETURN [PRODUCT PREFERENCE CORRELATION]

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'129 AND '348 PATENTS-FIGURES 6A AND 6B

- “In FIG. 8A the flowchart for updating the consumer characterization vectors is depicted. The system receives data from the point of purchase at receive point of purchase information step 800.” Exhibit 15, col.12, lns.33-35 (emphasis added).
- “FIG. 8B shows a flowchart for the correlation process. At step 900 the advertisement characteristics described earlier in accordance with FIG. 5 along with the consumer ID are received by consumer profiling system 500.” Exhibit 15, col.12, lns.60-64 (emphasis added).

These terms are all understood in the art to refer to computerized processes and steps carried out by a programmed computer. These are not terms that would be used to describe the actions of a human-being. Although the specification explicitly states that “each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose,” it is undisputable that a human-being and a computer system are not technical equivalents operating in similar manners. Exhibit 15, col.4, lns.35-37. Additionally, there is no description of any manual processing of information in the '129 and '348 patents, such as obtaining purchase records from a paper file or hand-writing the consumer profile, which would be required if the claimed computer-implemented method involved steps capable of being carried out by a human-being. The notable absence of such description further undermines Expanse’s construction and supports Catalina’s construction.

The USPTO Examination Guidelines for Computer-Related Inventions (“Guidelines”) relied upon by Expanse also do not support its construction.⁶ In its brief, Expanse recites an out-of-context portion from the Guidelines to support its construction: “[m]any computer related inventions do not consist solely of a computer.” *See* Expanse's Brief, at 15-16. To provide full context, the portion cited by Expanse is a footnote to a passage that, in turn, states:

The written description will provide the clearest explanation of the applicant's invention, by exemplifying the invention, explaining how it relates to the prior art and explaining the relative significance of various features of the invention. Accordingly, Office personnel should begin their evaluation of a computer-related invention as follows:

- determine what the programmed computer does when it performs the processes dictated by the software (*i.e.*, the *functionality* of the programmed computer);ⁱ
- determine how the computer is to be configured to provide that functionality (*i.e.*, what elements constitute the programmed computer and how those elements are configured and interrelated to provide the specified functionality); and
- if applicable, determine the *relationship* of the programmed computer to other subject matter outside the computer that constitutes the invention (*e.g.*, machines, devices, materials, or process steps other than those that are part of or performed by the programmed computer).

See Exhibit 3, at 3 (italicized emphasis in original, underlining added). When read in total, it is clear that the Guidelines refer to the use of a programmed computer as part of an larger overall invention, such as a computer controlling a piece of machinery that actually carries out the claimed steps. They do not mandate that “computer implemented method” means that some steps are carried out by the computer and some steps are

⁶ Catalina also relied on the Guidelines in its *Markman* Brief to support its claim construction. The

carried out by subject matter outside the computer. Additionally, in order for the Examiner to do as the Guidelines suggest and “determine the relationship of the programmed computer to other subject matter outside the computer that constitutes the invention,” *id.*, the outside subject matter (*e.g.*, a human-being) must be disclosed in the written description of the patent. There is no such disclosure in the patents at issue. Therefore, a “computer implemented method” must be a computer program for carrying out each step of the claimed process, not just a process performed by a human-being using a computer or a combination of a computer carrying out some steps and a human-being carrying out other steps.

Expanse’s construction is also contrary to how one of ordinary skill in the art would understand the terms “computer implemented method.” One of ordinary skill in the art would understand such term to mean a computer program for carrying out each of the steps of the method, not just a process performed by a human-being using a computer. Exhibit 25, Expert Report of Williams, ¶ 1.

Dictionary definitions also contravene Expanse’s construction. “Implement” means to “carry out, accomplish.” *See* Exhibit 6, Merriam Webster, at 583. Thus, when the verb “implement” is modified by “computer,” it is plain that the computer (not anything else) is the means of accomplishing the claimed method.

Other evidence undermines Expanse’s construction. A document entitled “*The Patentability of Computer-Implemented Inventions*” published in 2000 by the

Guidelines, which were cited during prosecution of both the '129 and '348 patents, are appropriately considered in claim construction when taken in context.

Commission of European Communities, addresses harmonization of standards for patentability of computer implemented inventions in Europe and the United States:

i. The principle

Patents shall be granted for any inventions in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. In that context, a computer-implemented invention is considered to belong to a field of technology.

Comments:

This element reflects Article 27(1) of the TRIPS Agreement, according to which patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.

It assumes that a computer-implemented invention belongs to a field of technology because its purpose generally is to control the operation of a computer. In so doing, a computer program causes, when run on a computer, a technical effect. This technical effect may consist, for instance, in the control of an industrial process or the working of a piece of machinery by the computer (examples: a method of digitally processing images⁷; an X-ray apparatus incorporating a data processing unit to ensure optimum exposure with sufficient protection against overloading of the X-ray tubes). It may also be found in the internal functioning of the computer itself or its interfaces under the influence of the program (example: user interface for a business management system⁸). By controlling the operation of the computer, the computer program causes the computer to perform a task automatically without any intervening mental activity of a human being.

See Exhibit 38, at 4 (emphasis added).⁷ The European Patent Office (“EPO”) has also issued guidelines for examination of business method applications, including computer implemented inventions. See Exhibit 39. These guidelines provide that computer implemented inventions involve computers or computer networks claimed as either part

⁷ The European Patent Office is generally credited with coining the term “computer-implemented invention” as a patent term of art. Although this publication does not directly address patentability in the United States, it is still relevant to show use of the term “computer-implemented” as a patent term-of-art at the time the '129 and '348 patents were being prosecuted.

of a process for controlling outside subject matter (“conventional apparatus,” such as machinery) or as a computer program itself:

Examination of computer-implemented inventions

The expression "computer-implemented inventions" is intended to cover claims which specify computers, computer networks or other conventional programmable digital apparatus whereby prima facie the novel features of the claimed invention are realised by means of a new program or programs. Such claims may take the form of a method of operating said conventional apparatus, the apparatus set up to execute the method (loaded with the program), or, following T1173/97, the program itself. Insofar as the scheme for examination is concerned, no distinctions are made on the basis of the overall purpose of the invention, i.e. whether it is intended to fill a business niche, to provide some new entertainment, etc..

See Exhibit 39, at 4 (emphasis added). Like the USPTO Guidelines, these publications recognize that computer implemented inventions do not involve intervening activity by a human-being even though the invention may involve outside subject matter (such as the computer working a piece of machinery). As there is no outside subject matter disclosed or claimed in the '129 and '348 patents, the computer implemented invention claimed must require a programmed computer to carry out each of the claimed steps.

B. PROFILE

Catalina proffers that the term “profile” means “a formal summary or analysis of data representing at least two distinctive features or characteristics, often in the form of a graph or a table.” Expanse asserts that the term means “one or more significant features or characteristics.” *See* Expanse's Brief, at 14 (emphasis added). The parties agree that a profile must link a consumer with significant or distinctive features or characteristics. They dispute, however, the number of characteristics required to make-up a “profile.”

Catalina asserts that there must be at least two characteristics, while Expanse asserts that a single characteristic is sufficient.

Expanse's construction is contrary to the plain, dictionary definition of the term: a "formal summary or analysis of data representing distinctive features or characteristics." See Exhibit 5, American Heritage, at 1112 (emphasis added). Moreover, those of ordinary skill in the art would understand the term consistent with the dictionary definition of the term. See Exhibit 25, Expert Report of Williams, ¶ 3; Exhibit 29, Thissen Decl., ¶¶ 7 and 9. The plain implication of this dictionary definition, which would be used by one of ordinary skill in the art, is that a profile requires *plural features* or *plural characteristics*, meaning two or more features or characteristics. Expanse has not offered any evidence of a relevant ordinary meaning to the contrary, and has not taken exception to the dictionary definition cited by Catalina. See Expanse's Brief, at 16-17.

Expanse's proposed construction is contrary to the explicit definition it provided during its prosecution appeal of the '348 patent. There, Expanse argued for patentability over the examiner's rejection on the basis of a particular definition of "demographic profile" provided in the specification:

As defined in the present application, the demographic profile includes a probabilistic measure that the customer fits in certain demographic classes (i.e., 80% chance the customer is married, 40% chance the customer has kids).

See Exhibit 16, CATA 001019 (emphasis added). Thus, acting as its own lexicographer, Expanse argued to the USPTO that "profile" included at least two classes of characteristics, such as marital status and children. Expanse is estopped from now

arguing, contrarily, that a single characteristic qualifies as a “profile” in the '129 and '348 patents. *See 3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (patentee’s definition in the intrinsic evidence controls over ordinary meaning or technical definitions).

Expanse claims that it “can find no support for the contention that a profile must have at least two characteristics.” Expanse’s Brief, at 14.⁸ Not only has Expanse turned a blind eye to the repeated and consistent use of “profile” in the specifications, it has also mischaracterized the specifications in an inartful attempt to support its single characteristic construction. To support its position, Expanse quotes portions of the specifications of the '129 and '348 patents out of context. Specifically, in addressing the use of basis vectors to represent the components of a demographic profile in vector form, Expanse quotes from the specification, but omits a key sentence. That passage, with omitted sentence in italics, states:

In an alternate embodiment a group of demographic or product characteristics forms an individual vector. As an example, age categories can be considered a vector, with each component of the vector representing the probability that the consumer is in that age group. In this embodiment each vector can be considered to be a basis vector for the description of the consumer or the target ad. *The consumer or ad characterization is comprised of a finite set of vectors in a vector space that describes the consumer or advertisement.*

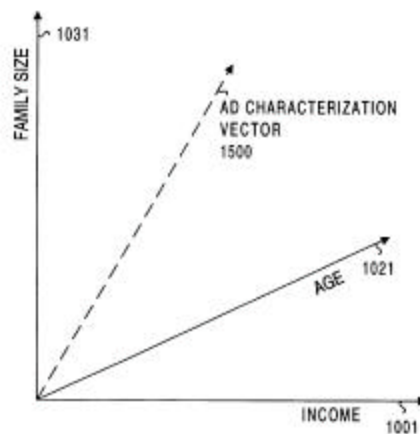
See Exhibit 1, col.9, lns.39-48 (emphasis added); Exhibit 15, col.8, lns.56-65 (emphasis added). This passage describes the use of basis vectors to represent the individual components that combine to make-up the profile.⁹ The sentence omitted by Expanse (in

⁸ As discussed in Catalina’s opening brief, however, the specifications of the patents at issue repeatedly and consistently reference multiple characteristics as making-up a “profile.”

⁹ Expanse admits that this passage describes a “profile” in the '129 and '348 patents, even though the

italics above) states that the characterization is comprised of “a finite set of [basis] vectors” that describe the consumer or advertisement, meaning that the age basis vector is not by itself a profile, instead it becomes a profile when combined with other characteristic basis vectors, such as family size or income. Thus, even those portions of the specifications cited by Expanse, when read in full context, support Catalina’s construction.

Had Expanse conducted a thorough review of the specifications of the '129 and '348 patents prior to filing its *Markman* brief, it would have discovered further explanation of basis vectors that plainly indicate that a basis vector represents a single component (or characteristic) that is combined with other basis vectors representing other components to form the complete profile. For example, Figure 10 of the patents illustrates a consumer characterization vector (consumer profile in vector form) broken down into basis vectors of family size, age, and income.



'129 AND '348 PATENTS-FIGURE 10

passage does not actually use the term “profile.” Catalina does not dispute that the consumer or

See Exhibit 1, Figure 10. This figure is described as “a consumer characterization [illustrated] as a set of basis vectors,” meaning that the profile is comprised by the combination of the basis vectors. Exhibit 1, col.4, lns.60-62; Exhibit 15, col.4, lns.25-27. There is no disclosure in the '129 and '348 patents that a single basis vector, alone, can represent a “profile.” The dictionary definition and the specifications and prosecution histories of the patents-in-suit all support Catalina’s construction that a profile requires a linkage between a consumer and at least two characteristics.

C. PROBABILISTIC MEASURE

Catalina proffers that “defining a probabilistic measure” means “to distinctly specify the numeric likelihood of demographic characteristics.” Expanse argues that “probabilistic measure” means a “quantity which is uncertain, but which has a known or unknown probability associated with it.” See Expanse's Brief, at 17-18. Plainly, Expanse wants this Court to adopt a general construction that would involve fuzzy unquantified limitations (such as “more or less likely”), rather than one that would require specific numerical probability values. Expanse provides no evidentiary support (for example, no citations to the intrinsic record, to dictionaries, or to declarations from one of ordinary skill in the art) for its asserted meaning. Instead, Expanse simply makes up an example (not found in the patents at issue) regarding purchasers of Colgate, which is actually an indirect and inappropriate reference to one of Catalina’s accused infringing products. See *Vivid Tech., Inc. v. American Science & Eng., Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“claims are to be construed objectively and without reference to the accused device”).

advertisement characterization described is a “profile” as that term is used in the '129 and '348 patents.

Expanse's "unquantified" construction is plainly contrary to the definition Expanse provided during the prosecution appeal of the '348 patent in order to overcome a rejection of the '348 patent by the patent office. There, Expanse, acting as its own lexicographer, argued that "probabilistic measure" is a numeric percentage of specific numeric value:

As defined in the present application, the demographic profile includes a probabilistic measure that the customer fits in certain demographic classes (i.e., 80% chance the customer is married, 40% chance the customer has kids).

See Exhibit 16, CATA 001019 (emphasis added). Expanse cannot now avoid this specific construction, and is estopped from asserting that the term means an unquantified measure. *See 3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003) (patentee's definition in the intrinsic evidence controls over ordinary meaning or technical definitions).

Further, Expanse's construction of "probabilistic measure" as meaning an unquantified amount is inconsistent with how the phrase is used in the context of the claims. In construing claim terms, the context of the surrounding claim language must be considered. *See Brookhill-Wilk*, 334 F.3d at 1300. Claim 1 of the '348 patent, for example, includes the limitation "where in [sic] the product characterization information includes a set of heuristic rules defining a probabilistic measure of demographic characteristics of a purchaser of a product" *See* Exhibit 15, col.13, lns.45-55. While the word "define" has several dictionary meanings, the most appropriate meanings in the context of the patents at issue are: "describe the nature or basic qualities of; explain: *define the properties of a new drug; a study that defines people according to their*

incomes,” “to state the precise meaning of” and “to specify distinctly.” See Exhibit 5, American Heritage, at 371 (emphasis in original); Exhibit 6, Merriam Webster, at 303; Exhibit 25, Expert Report of Williams, ¶ B10.¹⁰ Thus, something that is defined necessarily may not be unspecified/unquantified.

Moreover, intrinsic evidence of record does not support Expanse’s “unquantified” construction. The claims of the patents at issue state that a “probabilistic measure” is “defined by a set of heuristic rules.” The intrinsic evidence of record makes a distinction between *logical* heuristic rules and *probabilistic* heuristic rules. See Exhibit 17, EXP 010163; '010 patent, Exhibit 18, col.2, lns.43-54 and col.11, lns.4-34.¹¹ For example, the '010 patent specification provides:

The present invention also encompasses the use of heuristic rules in logical form or expressed as conditional probabilities to aid in forming a subscriber profile. The heuristic rules in logical form allow the system to apply generalizations which have been learned from external studies to obtain a characterization of the subscriber. In the case of conditional probabilities, determinations of the probable content of a program can be applied in a mathematical step to a matrix of conditional probabilities to obtain probabilistic subscriber profiles indicating program and product likes and dislikes as well as for determining probabilistic demographic data.

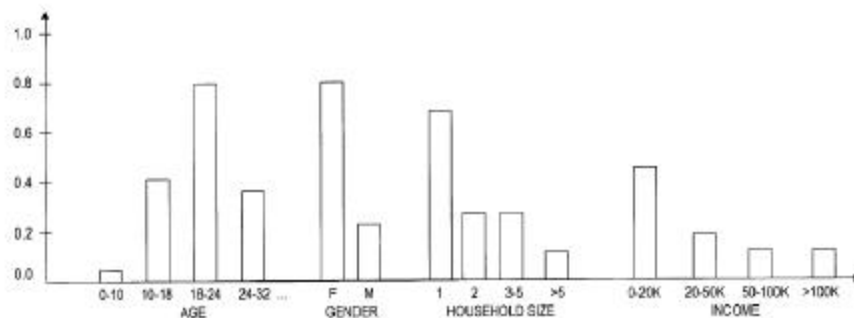
Exhibit 18, col.2, lns. 43-54 (emphasis added). Thus, the *logical* type of heuristic rules apply generalizations, while the *conditional probability* type of heuristic rules involve

¹⁰ Merriam Webster’s gives “define” similar meaning, including “to determine or identify the essential qualities or meaning of” and “characterize, distinguish.” See Exhibit 6, Merriam Webster, p. 303. Other definitions that relate to an outline of a form are not relevant in the context of the '129 patent. See Exhibit 5, American Heritage; Exhibit 6, Merriam Webster, at 303.

¹¹ The '129 and '348 patents claim priority to the '010 patent, and the '888 application is incorporated by reference in both the '129 and '348 patents. Therefore, both of these references are to be considered in construing the patents at issue. See *Intergraph Corp.*, 89 Fed. Appx. at 225-226; *Omega Eng’g*, 334 F.3d at 1333; *Kimberly Clark*, 4 Fed. Appx. at 950; *Abtox*, 131 F.3d at 1010.

numeric probabilities capable of mathematical processing. In further support of this meaning of conditional probabilities, the '010 patent specification states:

Conditional probabilities can be applied by simple mathematical operations multiplying program context vectors by matrices of conditional probabilities. By performing this process over all the demographics groups, the program target analysis process 1100 can measure how likely a program is to be of interest to each demographic group. Those probabilities values form the program demographic vector 170 represented in FIG. 12.



'010 PATENT-FIGURE12

Exhibit 18, col.12, lns.17-24 (emphasis added) and Figure 12. The '010 patent specification also provides:¹²

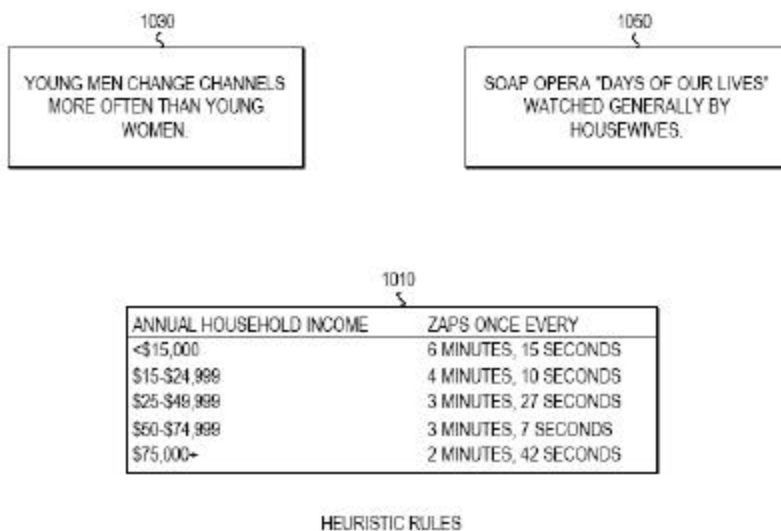
In the case of heuristic rules in the form of conditional probabilities such as those illustrated in FIG. 10B, a dot product of the time averaged values of the program characteristics vectors can be taken with the appropriate matrix of heuristic rules to generate both the household session demographic data 1310 and the household session interest profile 1320.

Exhibit 18, col.13, lns.14-20 (emphasis added).

The '010 patent and '888 application also refer to Figures to make plain that *logical heuristic rules* can be described in terms of “more likely than not” probabilities, whereas *conditional probability heuristic rules* can be described in terms of numerical

¹² “Dot product” referenced in the following quote is another term for “scalar product” and describes vector multiplication. Exhibit 6, Merriam Webster, at 1041.

probabilities. For example, Figure 10A illustrates a *logical heuristic rule* as being “young men change channels more often than young women” and another rule as “soap opera ‘days of our lives’ watched generally by housewives.” It also illustrates a rule relating frequency of channel change (“zaps”) with household income. *See* Exhibit 17, EXP 010048 (emphasis added); Exhibit 17, Figure 10A.



'888 APPLICATION-FIGURE10A
'010 PATENT-FIGURE10A

Figure 10B, by contrast, illustrates rules “expressed in terms of *conditional probabilities*” that are expressed in terms of numeric probabilities that a viewer has particular characteristics, such as 0.1 (10%) or 0.5 (50%). *See* Exhibit 17, EXP 010023; Exhibit 18, col.11, lns.26-27 (emphasis added).

		DEMOGRAPHIC GROUPS									
		AGE				INCOME			SIZE		
		0-10	10-18	...	>70	0-20K	20-50K	...	50-100K	1	2
CATEGORIES	NEWS	0.1	0.1	...	0.4	0.2	0.3	...	0.4	0.5	0.3
	FICTION	0.5	0.3	...	0.2	0.4	0.2	...	0.3	0.3	0.2
	FACTUAL	0.2	0.2	...	0.3	0.1	0.4	...	0.2	0.2	0.4
	ADVERTISING	0.1	0.3	...	0.5	0.3	0.2	...	0.1	0.2	0.5

'888 APPLICATION-FIGURE10B
'010 PATENT-FIGURE10B

In prosecuting the '010 patent and the '888 application, Expanse further explained the difference between logical and probabilistic heuristic rules:

As defined in the application, the heuristic rules may be logical rules or may be rules expressed in terms of conditional probabilities (page 11, lines 27-29). Fig 10A and the associated text from page 21, line 12-page 22, line 1 illustrate and describe exemplary logical heuristic rules. For example, the heuristic rules equate an individual watching the soap opera "Days of our lives" with a housewife (1050). The heuristic rules also equate higher frequency of channel changes to higher income, as illustrated a user who zaps once every 2 minutes and 42 seconds is associated with an income of greater than \$75,000 (1010). Fig.10B and the associated text from page 22, line2-page 22,line10 illustrate and describe exemplary probabilistic rules. The exemplary [probabilistic] rules define probabilities of demographic make-up of a user based on the category of programming they are viewing. For example, the heuristic rules assign an individual watching the news a 40% probability of being over the age of 70, a 40% probability of making between \$50K-\$100K, a 50% of being a single member family, and a 70% chance of being female. It is clear that the exemplary heuristic rules described in the application are related to viewing characteristics (i.e., watching soap opera, watching the news) and predict traits that are not related thereto (i.e., housewife, 40% probability of income between \$50k-\$100k).

See Exhibit 17, EXP 010163 (emphasis added); *see also* Exhibit 18, CATA 000358 (with nearly identical text).

Figure 7 of the '129 and '348 patents make a similar distinction between logical and probabilistic rules.

PRODUCT DEMOGRAPHICS VECTOR			PRODUCT CHARACTERISTICS		
PRODUCT ID			PRODUCT ID: 2597251		
HOUSEHOLD INCOME	≤20K	0.2	BRAND: KELLOGG'S CORN FLAKES		
HOUSEHOLD INCOME	20-40K	0.3	SIZE: 32 OZ		
⋮			PRICE: \$2.69		
HOUSEHOLD SIZE	0-2	0.1			
HOUSEHOLD SIZE	2-4	0.3			

PRODUCT DEMOGRAPHICS RULES		
MONTHLY QUANTITY OF DIAPERS PURCHASED	ESTIMATED HOUSEHOLD SIZE	ESTIMATED # OF CHILDREN <5
>300	>5	≥3
150-300	3-5	2-3
50-150	3-4	1-2
1-50	3-4	1

HEURISTIC RULES

'129 PATENT-FIGURE 7

In Figure 7, the “product demographics vector” heuristic rule, illustrating numeric probabilities of household income and size for a particular product identification (ID), is a *conditional probability* or *probabilistic heuristic rule*. In contrast, the “product demographic rules,” which generalize monthly quantities of diapers purchased with household size and number of children under the age of five, is a *logical heuristic rule*. See Exhibit 42, Eldering Expert Deposition at 294:22-295:10. Because the claims at issue require that the pertinent “probabilistic measure” be “defin[ed]” by “a set of heuristic rules,” and because the specifications of the patents at issue and other intrinsic evidence of record make clear that the heuristic rules are *probabilistic* heuristic rules of the *conditional probability type*, not the *logical type*, “probabilistic measure” must mean a numeric probability of particular characteristics, not some unquantified measure.

By characterizing probabilistic measure as a “quantity” with a “known or unknown” probability, Expanse’s construction also improperly ignores the “defining” aspect of the claim language – “the set of heuristic rules defining a probabilistic measure.” The term “quantity” in Expanse’s construction has several definitions, including “a specified or indefinite number or amount;” “an exact amount or number;” “determinate or estimated amount;” and “total amount or number.” *See* Exhibit 5, American Heritage, p. 1139; Exhibit 6, Merriam Webster, p. 955. Expanse is apparently relying on “quantity” as being an indefinite amount, such as “more likely than not,” rather than “quantity” being a definite amount, such as 60% or 80% likely. However, an indefinite amount would be inconsistent with the claim language of the '129 and '348 patents, in which the set of heuristic rules “defines” the probabilistic measure. The word “define” has several meanings; however, the most appropriate meanings in the context of the '129 and '348 patents are to “describe the nature or basic qualities of; explain: *define the properties of a new drug; a study that defines people according to their incomes,*” “to state the precise meaning of” and “to specify distinctly.” *See* Exhibit 5, American Heritage, p. 371 (emphasis in original); Exhibit 6, Merriam Webster, p. 303; Exhibit 25, Expert Report of Williams, ¶ B10.¹³ Something that is defined necessarily may not be unspecified/unquantified. Therefore, the proper definition of quantity related to Expanse’s construction of “probabilistic measure” requires a definite amount, such as 60% or 80%. That Expanse relies on an indefinite amount for its construction of

¹³ The term “define” has similar meanings in Merriam Webster’s dictionary, including “to determine or identify the essential qualities or meaning of” and “characterize, distinguish.” *See* Exhibit 6, Merriam Webster, p. 303. Other definitions that relate to an outline of a form are not relevant in the context of the '129 patent. *See* Exhibit 5, American Heritage; Exhibit 6, Merriam Webster, p. 303.

“probabilistic measure” is improperly inconsistent with the other claim language that the probabilistic measure is defined.

Finally, Expanse’s construction of “probabilistic measure” is contrary to the meaning of these terms as understood by one of ordinary skill in the art. *See* Exhibit 25, Expert Report of Williams, ¶ B9. One of ordinary skill in the art would understand the terms “probabilistic” and “measure” together to mean a numeric value representing the probability or likelihood of demographic characteristics. Expert Report of Williams, ¶ B11.

D. SCALAR PRODUCT

Catalina proffers that “scalar product” is a two-word mathematical term which means “the result of multiplying the corresponding components of two vectors and adding the results.” Expanse, however, does not construe the full two-word phrase, and instead commits a fundamental error in claim construction by erroneously construing only “scalar.” *See Vanderlande*, 366 F.3d at 1321 (noting impropriety of relying on a dictionary definition of a single word in a two-word claim term); *see also Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1310-1311 (Fed. Cir. 2003). Although Expanse recognizes that “scalar product” is used in the specification and the claims, it construes “scalar” alone as meaning a “number, numerical quantity, or element in a field.” *See* Expanse’s Brief, at 19. Expanse then erroneously asserts that “scalar” and “scalar product” are essentially the same because they are “consistently used in the specification simply as a means of calculating a correlation between profiles.” *See* Expanse’s Brief, at 19. The construction proffered by Expanse is belied by the ordinary

dictionary definition of “scalar product,” the ‘129 patent specification, the position of the inventor of the patents at issue, and the understanding of those of ordinary skill in the art.

First, the dictionary relied upon by Expanse includes a definition for “scalar product” which confirms Catalina’s construction, not Expanse’s.¹⁴ *See* Expanse’s Brief, p.19; Exhibit 40, American Heritage, at 1237. Specifically, the American Heritage dictionary defines “scalar product” to mean a “numerical product of the lengths of two vectors and the cosine of the angle between them.” *See* Exhibit 40, American Heritage, at 1237.

Second, the ‘129 patent specification demonstrates that there is simply no basis to independently construe “scalar” out of context with the full term “scalar product.” The term “scalar” alone appears only once in the specification of the ‘129 patent, and there, it refers to the numeric result of the scalar product (or dot product). *See* Exhibit 1, col.12, lns.13-15.¹⁵ Importantly, it is never referred to as a “means of calculating” as asserted by Expanse. *See id.* On the contrary, the ‘129 patent specification repeatedly and consistently refers to calculation of the correlation factor as a “scalar product” or “dot product” process:

- “Another advantage of the present invention is that the correlation can be performed by calculating a simple scalar (dot) product of the ad characterization and consumer characterization vectors.” Exhibit 1, col.4, lns.10-13 (emphasis added).

¹⁴ The American Heritage definition of “scalar product” is the “numerical product of the lengths of two vectors and the cosine of the angle between them.” *See* Exhibit 40, American Heritage, at 1237. In the case of vectors like those used to represent the consumer and advertisement profiles in the ‘129 patent, the “cosine of the angle” portion of the definition has a numeric value of 1 because the angle is effectively zero. The cosine of 0° is 1.

¹⁵ The result of scalar product (or dot product) vector multiplication is commonly referred to in the art as a “scalar,” which is a numeric value. *See* Exhibit 41.

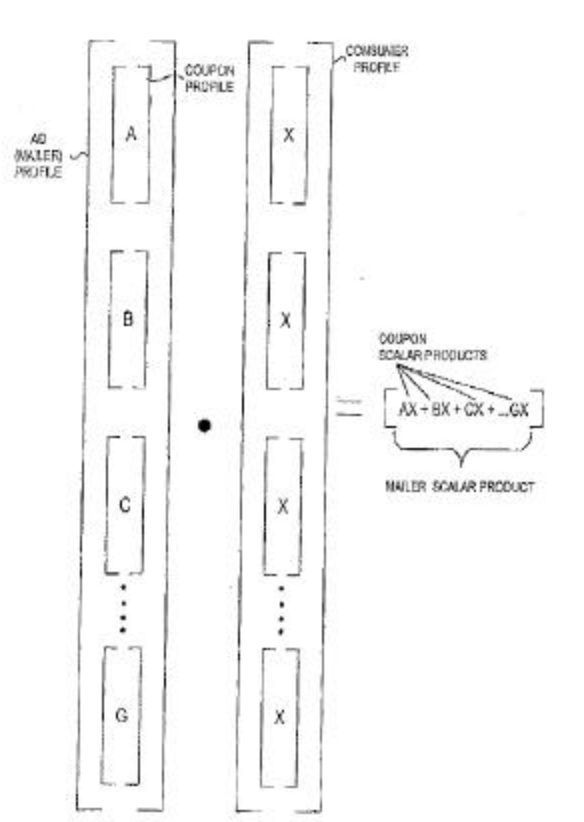
- “In a preferred embodiment the correlation process involved computing the dot product between vectors. The resulting scalar is the correlation between the two vectors.” Exhibit 1, col.12, lns.12-14 (emphasis added).
- “In a preferred embodiment of the present invention the correlation is calculated as the scalar product of the ad characterization vector and the consumer characterization vector.” Exhibit 1, col.3, lns.43-46 (emphasis added).

By asserting the “ordinary meaning” of only the term “scalar,” Expanse avoids the inherent requirement of “scalar product” that the consumer and advertisement profiles be in vector form.

Third, Dr. Eldering, the sole inventor of the patents-in-suit and Expanse’s sole infringement expert, confirmed that the ordinary meaning of “scalar product” is a numeric value resulting from multiplication of vectors. At his personal deposition, Dr. Eldering testified:

- Q: Do you know how to obtain the scalar product of two vectors mathematically?
- A: Yes, I do.
- Q: How do you do that?
- A: The scalar product would be obtained by multiplying the individual components of the vector and summing the result of those multiplications.

See Exhibit 9, Eldering Deposition, at 95:22-96:6. Dr. Eldering also provided an example of this calculation in Appendix E of his expert report:



See Exhibit 35. From this example, it is clear that a scalar product involves multiplication and addition of numeric values (i.e. the value assigned for the advertisement and consumer profiles, such as A, B, C,... and X, X, X... in the example) to arrive at a numeric result (i.e. the numeric correlation factor) that is the sum of the multiplications of each corresponding component in the vectors ($AX + BX + CX \dots$).

Finally, one of ordinary skill in the art of the '129 would understand "scalar product" as a two-word mathematical term meaning a numeric value resulting from multiplication of vectors. See Exhibit 25, Expert Report of Williams, ¶ 16; Exhibit 6, Merriam Webster, at 1041. Numerous mathematical resources cited in Catalina's opening brief confirm this understanding. See Exhibits 10, 11, 23, 24, 26, 32-34.

In light of the foregoing, there is simply no question that "scalar product" means

the result of multiplying the corresponding components of two vectors and adding the results. Expanse's attempt to mislead this Court to the contrary even in the face of the testimony of its own expert and inventor is egregious.

III. CONCLUSION

The calculation of the correlation factor in the '129 is required to be a scalar product. In order to calculate a scalar product, the consumer profile must be generated in vector form. To be expressed as a vector, there must be at least two characteristics in the profile expressed as a quantified probabilistic measure (a vector requires at least a value for the x-axis and a value for the y-axis). Therefore, it is clear that the terms discussed herein work together as part of a coherent whole, which describes a specific mathematical operation for selecting a targeted advertisement, which was disclosed in order to obtain the patent over a prior rejection by the patent office. Further, the parties have stipulated that the term "calculating" means a mathematical operation. Thus, Catalina's proffered claim construction is proper, supported and consistent when viewed in the entire context of the patents-in-suit.

By contrast, of the four claim phrases that Expanse has construed, Expanse has mischaracterized its evidentiary support for three of these terms ("computer implemented," "profile," and "scalar product") and it has not provided any support for its proffered meaning of the fourth term ("probabilistic measure"). In addition to the problems plaguing the evidentiary support, or lack thereof, relied upon by Expanse, its claim construction errors are abundant, including its (1) failure to confirm its proffered constructions by reference to the intrinsic record; (2) failure to recognize the explicit

definitions provided for the terms “profile” and “probabilistic measure” during the prosecution appeal of the '348 patent; (3) construction of a single term in a two-word claim term; and (4) failure to consult the '010 patent or the '888 application in construing the '129 and '348 patents. For all the reasons stated herein, Expanse’s construction of the four terms it identified is erroneous and inconsistent and should not be adopted by this Court. Catalina respectfully requests that these terms be construed as set forth in Catalina’s Markman Brief and proposed order.

Respectfully Submitted,

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/JVG2384

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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **DEFENDANT'S RESPONSE TO PLAINTIFF'S CLAIM CONSTRUCTION BRIEF** was served upon the attorneys of record of all parties to the above on this 9th day of July, 2004 as follows:

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